

RECEIVED
CENTRAL FAX CENTER
APR 18 2011

Serial No. 10/589,376
Response to Office Action dated October 18, 2010

PATENT
Docket: CU-5009

AMENDMENT

Amendments to the Claims

The listing of claims presented below replaces all prior versions, and listings, of claims in the application.

The Applicant wishes to make the following amendments to the claims of the above patent application:

Listing of Claims:

1-6. (cancelled)

7. (currently amended) A cell culture patterning substrate comprising:

a base material;

a cell culture region ~~which is formed on the base material~~, is a region for culturing a cell and contains a cell adhesive layer having adhesive properties to the cell; and

a cell non-culture region which is formed on the base material, is a region other than the cell culture region ~~on the base material and~~ has cell adhesion-inhibiting properties ~~inhibits adhesion to a cell~~,

wherein the cell culture region comprises:

a cell adhesion portion ~~at which the cell adhesive layer is formed~~; and

a cell adhesion auxiliary portion having cell adhesion-inhibiting properties, ~~formed in a pattern, which inhibits adhesion to a cell, and~~ a whole surface of the cell culture region is capable of cell adhesion, and

wherein a cell adhesive layer is formed on the base material as the cell adhesion portion, and

wherein the cell adhesion auxiliary portion is sandwiched between the cell adhesion portions ~~has a plurality of portions~~ and is formed not to inhibit a cell binding in the cell culture region ~~such that, upon adhesion of a first cell on a first cell adhesion portion and a second cell on a second cell adhesion portion adjacent to the cell adhesion auxiliary portion the first and second cell can be bound to each~~

Serial No. 10/589,376

Response to Office Action dated October 18, 2010

PATENT

Docket: CU-5009

~~other on the cell adhesion auxiliary portion, and a plurality of cells on the entire cell culture region can be bound, and~~

wherein a width of the cell adhesion auxiliary portion is in the range of 0.5 μm to 10 μm , and

~~wherein an area of the cell culture region is such that an area where a cell arrangement - an arrangement of a cell in a center of the cell culture region becomes insufficient or an area where a cell non-adhesion region is made the cell does not adhere in the center of the cell culture region, at the time of cell culturing when the cell culture region is made only by the cell adhesion portion the cell is cultured in the cell culture region which does not contain the cell adhesion auxiliary portion.~~

8. (previously presented) The cell culture patterning substrate according to claim 7, wherein the cell adhesion auxiliary portion is formed in a line form in the cell culture region.

9. (currently amended) The cell culture patterning substrate according to claim 7, wherein a boundary between the cell adhesion auxiliary portion and the cell adhesion portion has a concavoconvex shape with concavoconvex successively formed in a planar view of the cell culture patterning substrate.

10. (currently amended) The cell culture patterning substrate according to claim 8, wherein a boundary between the cell adhesion auxiliary portion and the cell adhesion portion has a concavoconvex shape with concavoconvex successively formed in a planar view of the cell culture patterning substrate.

11. (currently amended) A cell culture patterning substrate comprising:

a base material;

a cell culture region which is formed on the base material, is a region for culturing a cell and contains a cell adhesive layer having adhesive properties to the cell; and

Serial No. 10/589,376

Response to Office Action dated October 18, 2010

PATENT

Docket: CU-5009

a cell non-culture region which is formed on the base material, is a region other than the cell culture region and has cell adhesion-inhibiting properties on the base material and inhibits adhesion to a cell,

wherein a boundary between the cell culture region and the cell non-culture region is a concavoconvex shape with concavoconvex successively formed in a planar view of the cell culture patterning substrate; and further

wherein the distance between an edge part of the concave portion and an edge part of the convex portion of the concavoconvex, upon adhesion of a plurality of cells to the cell adhesive layer, is a size that the cells are aligned linearly; and further

wherein an area of the cell culture region is an area where a cell arrangement becomes insufficient such that a cell cannot arrange regularly when a shape of the boundary between the cell culture region and the cell non-culture region is a straight line in planar view of the cell culture patterning substrate.

12. (cancelled)

13. (previously presented) The cell culture patterning substrate according to claim 11, wherein the average distance, between the edge part of the concave portion and the edge part of the convex portion of the concavoconvex, is in the range of 0.5 μm to 30 μm .

14. (cancelled)

15. (previously presented) The cell culture patterning substrate according to claim 9, wherein the concavoconvex shape is a right-angled concavoconvex.

16. (currently amended) The cell culture patterning substrate according to claim 11, wherein the concavoconvex shape is a right-angled concavoconvex.

Serial No. 10/589,376
Response to Office Action dated October 18, 2010

PATENT
Docket: CU-5009

17. (currently amended) The cell culture patterning substrate according to claim 7, wherein the cell adhesive layer contains a cell adhesive material wherein the cell adhesive material (i) has cell adhesive properties and (ii) is capable of being photocatalytically-decomposed or -denatured ~~decomposed or denatured by the action of a photocatalyst upon irradiation with energy.~~

18. (currently amended) The cell culture patterning substrate according to claim 7, wherein the cell adhesion auxiliary portion contains a cell adhesion-inhibiting material which (i) has cell adhesion-inhibiting properties and (ii) is capable of being photocatalytically-decomposed or -denatured ~~decomposed or denatured by the action of a photocatalyst upon irradiation with energy.~~

19. (currently amended) The cell culture patterning substrate according to claim 11, wherein the cell adhesive layer contains a cell adhesive material which (i) has cell adhesive properties and (ii) is capable of being photocatalytically-decomposed or -denatured ~~decomposed or denatured by the action of a photocatalyst upon~~ irradiation with energy.

20. (currently amended) The cell culture patterning substrate according to claim 11, wherein the cell non-culture region contains a cell adhesion-inhibiting material wherein the cell adhesion-inhibiting material has (i) the cell adhesion-inhibiting properties and (ii) is capable of being photocatalytically-decomposed or -denatured ~~decomposed or denatured by the action of a photocatalyst upon irradiation with energy.~~

21. (currently amended) A cell culture patterning substrate comprising:
a base material;

Serial No. 10/589,376
Response to Office Action dated October 18, 2010

PATENT
Docket: CU-5009

a cell culture region ~~which is formed on the base material, is a region for culturing a cell and contains a cell adhesive layer having adhesive properties to a cell; and~~

a cell non-culture region which is formed on the base material, is a region other than the cell culture region on the base material and inhibits adhesion to a cell and has cell adhesion-inhibiting properties,

wherein the cell culture region comprises:

a cell adhesion portion ~~at which the cell adhesive layer is formed; and~~

a cell adhesion auxiliary portion having cell adhesion-inhibiting properties, formed in a pattern, which inhibits adhesion to a cell, and a whole surface of the cell culture region is capable of cell adhesion, and,

wherein the cell adhesion auxiliary portion is formed such that the cell adhesion auxiliary portion is surrounded by the cell adhesion portion and not to inhibit a cell binding in the cell culture region, upon adhesion of a plurality of cells to the cell adhesion portion, the cells on the cell adhesion portion adjacent to the cell adhesion auxiliary portion can be bound to each other on the cell adhesion auxiliary portion, and cells on the entire cell culture region can be bound, and

wherein a width of the cell adhesion auxiliary portion is in the range of 0.5 μm to 10 μm , and

wherein an area of the cell culture region is such that an area where a cell arrangement, an arrangement of a cell in a center of the cell culture region becomes insufficient or an area where a cell non-adhesion region is made a cell does not adhere in the center of the cell culture region, at the time of cell culturing when the cell culture region is made only by the cell adhesion portion a cell is cultured in the cell culture region which does not contain the cell adhesion auxiliary portion.